DOCUMENT RESUME

ED 429 210 CE 078 458

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TITLE	Knowledge Workers. Trends and Issues Alert No. 4.
INSTITUTION	ERIC Clearinghouse on Adult, Career, and Vocational Education, Columbus, OH.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	1999-00-00
NOTE	4p.
CONTRACT	ED-99-CO-0013
AVAILABLE FROM	Web site: http://ericacve.org/tia.asp
PUB TYPE	ERIC Publications (071) -- Reference Materials - Bibliographies (131)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Adult Education; Annotated Bibliographies; Demand Occupations; *Education Work Relationship; *Educational Needs; *Employment Patterns; *Employment Qualifications; *Information Scientists; *Information Technology; Labor Force; Lifelong Learning; Needs Assessment; Technological Advancement; Trend Analysis

ABSTRACT

The globalization of work and continuing advances in technology are changing the nature of the work force. Blue-collar workers are being replaced by information specialists who are sometimes called "knowledge workers." Knowledge workers are workers who can think, work with ideas, and use information to solve problems and make decisions. In terms of their skills and abilities, knowledge workers are people who are highly educated, creative, and computer literate and who have portable skills that allow them to move anywhere their intelligence, talent, and services are needed. Knowledge workers represent the fastest-growing segment of the work force. Their main value to organizations is their ability to gather and analyze information and make decisions that will benefit their companies. Knowledge workers are continually learning. The responsibility for preparing students and unskilled workers with the technical and cognitive skills required for "knowledge" work has been placed in the hands of education. Although some say that workplace education that prepares individuals with information technology skills required for jobs in the knowledge sector should become a national priority, others are pessimistic about the employment potential of individuals engaged in high-tech training. (A 17-item annotated bibliography constitutes the majority of this document.) (MN)

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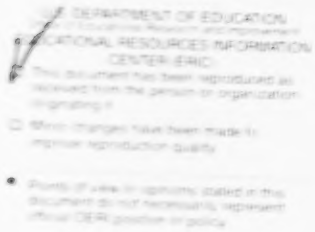

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TRENDS AND ISSUES ALERT NO. 4

1999

Knowledge Workers

The globalization of work and continuing advances in technology are changing the nature of the work force. Blue-collar workers are being replaced by information specialists called "knowledge workers"—workers who are "equipped to maintain and expand our technological leadership role in the next century" (Kelly 1998, p. 89); workers who can think, work with ideas, and make decisions (Shea 1998). Also known as "gold-collar" workers, knowledge workers are sometimes identified by their professional specialty, e.g., lawyer, doctor, programmer, information system designer, information specialist, librarians, teacher, and scientist (Bender 1998; Halal 1998; McGinn and Raymond 1997-98). Other writers describe knowledge workers by their characteristics: people who can analyze, synthesize, and evaluate information and use that information to solve problems of variable content. A third way of describing knowledge workers is by their skills and abilities—people who are highly educated, creative, computer literate, and have portable skills that make it possible for them to move anywhere their intelligence, talent, and services are needed (Munk 1998). This *Trends and Issues Alert* discusses this new type of worker, which represents the fastest growing segment of the work force. It also examines issues related to their employment and training.

New technologies, which are taking over many of the routine tasks performed in the workplace, are directing workers toward the more complex tasks that require thinking, understanding, assimilating new knowledge, and problem solving. A new computer-guided system for finding defects in textiles does so with greater accuracy than human inspectors and enables the work to be accomplished at much faster speeds (Taylor 1998). High-tech rings worn by United Parcel Service cargo handlers technically scan packages as they are loaded and unloaded (Kelly 1998). The time-saving aspects of new technologies not only free employees for more sophisticated tasks, but also place increased pressure on them to develop new skills that will enable them to participate in the knowledge revolution that reflects the changing nature of the workplace (Halal 1998).

What exactly do "knowledge workers" do? Knowledge workers use their intellect to convert their ideas into products, services, or processes (Miller 1998). They "own" their knowledge (Venezpej 1999). They can "sell it, trade it, or give it away and still own it" (Allee 1997, p. 71). Their main value to an organization is their ability to gather and analyze information and make decisions that will benefit the company. They are able to work collaboratively with and learn from each other; they are willing to take risks, expecting to learn from their mistakes rather than be criticized for them (Rogoski 1999). Knowledge workers are continually learning, aware that knowledge has a limited shelf life (Allee 1997). In this information revolution, "brains have become more valuable than brawn" (Gordon 1997, p. 16).

Former U.S. Secretary of Labor Robert Reich places the responsibility for preparing students and unskilled workers with the technical and cognitive skills required for "knowledge" work in the hands of education (McGinn and Raymond 1997-98). The existing and future work force must be prepared to meet the challenges posed by technology, e.g., maximizing efficient use of technological innovations, internationalizing ideas, and continually learning to avoid technical obsolescence (Boutwell 1997).

What is the employment outlook for knowledge workers? Predictions are that the highly skilled will be the "crême de la crême" of white-collar workers. The U.S. Bureau of Labor Statistics projects "a net increase of more than 10,000 information professionals in the U. S. labor force by 2006" (Bender 1998, p. 35). However, the BLS also predicts that 700,000 manufacturing jobs will disappear by that same year due to automation ("Knowledge Workers" 1997). Reich believes that the greatest challenge will be to retrain these middle-class workers (McGinn and Raymond 1997-98). Workplace education that prepares individuals with information technology skills required for jobs in the knowledge sector must become a national priority in order to avoid growing inequalities (ibid.).

However, Boutwell (1997) is pessimistic about the employment potential of those engaged in high-tech training. He contends that "the need for a greater supply of high quality workers is a myth perpetuated by the vested interests of business" (p. 110). He predicts that this myth will be exposed when "50% of America's graduates, regardless of high tech training, will have to resign themselves to menial, routine, dead-end jobs" in the face of a need for ever-greater numbers of less-skilled, low wage workers (ibid.). The following resources provide more in-depth discussion about the economic shift from manufacturing to knowledge workers and issues surrounding their employment.

Resources

Allee, V. "12 Principles of Knowledge Management." *Training and Development* 51, no. 11 (November 1997): 71-75.

Examines 12 principles that characterize knowledge and describes ways to make the most of knowledge assets in an organization. Emphasizes the driving values for creating and sharing knowledge, the individual and interactive nature of knowledge development, and pathways for building knowledge across multiple performance levels.

Barnet, R. "The New Millennium Workplace: Seven Changes that Will Challenge Managers—and Workers." *The Futurist* 30, no. 2 (March-April 1996): 14-22.

Identifies 7 trends that will shape work environments over the next 10 years: the virtual environment, just-in-time workers, the ascendance of knowledge workers, computerized coaching and electronic monitoring, the growth of worker diversity, the aging work force, and the birth of the dynamic work force.

Bender, D. R. "*Knowledge* Management Makes Information Work." *Washington Business Journal* 17, no. 6 (June 19, 1998): 35-36.

Identifies increasing demand for workers who have knowledge of information systems and describes knowledge management as the newest global business trend. Identifies benefits of employing knowledge managers who gather information and synthesize it into knowledge.

Boutwell, C. E. "Profits without People." *Phi Delta Kappan* 79, no. 2 (October 1997): 104-111.

Focuses on the corporate restructuring that has displaced many workers whose jobs have become outdated and led to the creation of knowledge workers. Describes these workers as individuals who can be imported or exported by any country and who enable leaner, and meaner, business enterprise.

Drucker, P. "The Future that Has Already Happened." *Harvard Business Review* 75, no. 5 (September-October 1997): 20-24.

Declares that the underpopulation of developed countries will be a dominant factor for business in the next 2 decades and discusses his view that a supply of knowledge workers is the only comparative advantage to be realized by developed countries. Predicts that the turbulent nature of the world economy will be reflected in the continuing change in the nature and content of relevant knowledge.

Gordon, E. E. "The New Knowledge Worker." *Adult Learning* 8, no. 4 (March-April 1997): 14-17.

Examines the complex tasks required in the new workplace and suggests the need for new approaches to training and more career education programs. Emphasizes the need for knowledge assimilation, problem-solving, and workload management skills.

Halal, W. E. "Knowledge Entrepreneurs." *Executive Excellence* 15, no. 9 (September 1998): 12-13.

Foresees a work force composed of knowledge workers. Discusses the disappearance of traditional jobs and the introduction of a new workplace where organizations are assured of performance, workers earn more money and control their work situations, complexity and change abound, and pay systems grow more diverse.

Kelly, J. "Those Who Can...Those Who Cannot: Winners and Losers in the Digital Age." *Vital Speeches of the Day* 65, no. 3 (November 15, 1998): 89-92.

Identifies five steps necessary to facilitate transforming the "cannot do" to the "can do" worker: (1) accepting a new paradigm of how the world works; (2) committing to a partnership of leaders to address the new world of work; (3) training workers and organizations for change; (4) building flexible organizations; and (5) constantly reinventing what those organizations deliver.

Knowdell, R. L. "A Model for Managers in the Future Workplace: Symphony Conductor." *Futurist* 32, no. 5 (June-July 1998): 22-23.

Compares knowledge workers to concert musicians and their managers to conductors using the following analogy: the musicians (knowledge workers) have responsibility for some pieces of music (their work projects) and not others. They are divided into different sections (teams) based on their instruments and vary the sections they work with depending on the performance. They can be hired as permanent or contract players, and they can hold multiple affiliations simultaneously.

"Knowledge Workers in Demand through Year 2000." *Managing Office Technology* 42, no. 1 (January 1997): 22.

Discusses the need for industrial workers to be retrained as knowledge workers and describes these workers as individuals who can gather, analyze, and disseminate information in such knowledge-based industries as computers, medical care, communications, and instrumentations.

McGinn, D., and Raymond, J. "Workers of the World, Get Online." *Newsweek* (Winter 1997-98) Extra Millennium Issue: 32.

Examines the changing workplace and the difficulty in predicting future changes that will be influenced by technology. Identifies some of the hot growth areas and jobs threatened by automation. Proposes roles knowledge workers will assume and how the business trend toward "talent for hire" will affect the work options of knowledge workers.

Miller, W. C. "Fostering Intellectual Capital." *HR Focus* 75, no. 1 (January 1998): 9-10.

Identifies knowledge and intelligence as the main assets of today's businesses. Challenges businesses to help their employees invest, renew, and leverage their intellectual capital and offers three ways to do this: expand intelligence, encourage creativity and innovation, and exercise integrity in relationships.

Munk, N. "The New Organization Man." *Fortune* 137, no. 5 (March 16, 1998): 62-74.

Describes the characteristics of "gold-collar" workers, people born between 1965 and 1977 who represent the new work force and who, in comparison with baby boomers, are few in number. Describes ways in which businesses are courting these workers and allowing them to change the environments where they work.

Rogoski, R. R. "Knowledge Workers Top Company Assets." *Triangle Business Journal* 14, no. 19 (January 8, 1999): 21.

Reports the need for companies to retain their knowledge workers by changing their corporate attitudes and structures, creating environments where knowledge is shared, nurturing loyalty, and offering positive reinforcements that include bonuses, stock options, benefits, and other perks that have value to knowledge workers.

Shea, T. "Are You Good at Attracting Knowledge Workers?" *Orlando Business Journal* 15, no. 29 (December 18, 1998): 30.

Identifies some of the characteristics of knowledge workers and strategies companies can use to recruit and retain them: have a clear vision, create a learning environment, make a serious commitment to provide technology equipment, be active in benchmarking, encourage experimentation and tolerate "failure," and involve employees in establishing organizational structures.

Taylor, K. S. "The Brief Reign of the Knowledge Worker: Information Technology and Technological Unemployment." Paper presented at the International Conference on the Social Impact of Information Technologies, St. Louis, MO, October 1998. <http://online.bcc.cec.edu/econ/kst/BriefReign/BRweb version.htm>

Presents some of the prevailing views about employment in the new economy and the demand for knowledge workers and speculates on possible ramifications of the automation of information transmission. Challenges institutions to break the link between production and income and engage in creative activities that cannot be automated.

Verespej, M. A. "Invest in People." *Industry Week* 248, no. 3 (February 1, 1999): 6-7.

Offers four keys to creating an environment where workers add value: (1) instill a desire for continuous learning in all workers; (2) establish a talent pool of workers at all levels; (3) recognize the importance of retaining talent; and (4) empower workers to be more productive.

This project has been funded at least in part with Federal funds from the U.S. Department of Education under Contract No. ED-99-CO-0013. The content of this publication does not necessarily reflect the views or policies of the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. *Trends and Issues Alerts* may be freely reproduced and are available at <http://ericacve.org/fulltext.asp>.

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